

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No. 10/827,303

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): An optical amplifier that amplifies signal light in a signal band in a fiber optic transmission system having at least , the optical amplifier comprising:
first and second optically pumped signal light gain amplifying stages,
a tilt controller linked to a control unit and linked between the first and second optically
pumped signal light gain amplifying stages, and
[[a]] an optical monitor analyzing signal powers, wherein the optical monitor measures
an amplified spontaneous emission of the optical amplifier is measured at two extreme
wavelengths of the signal band to derive control signals for, and
a control unit which controls at least the tilt controller and the first and second optically
pumped signal light gain amplifying stages to adjust a spectrum of the optical amplifier, based on
the measured amplified emission.

2. (currently amended): [[An]] The optical amplifier according to claim 1, further
comprising a variable optical attenuator linked to the tilt controller, the second optically pumped
signal light gain amplifying stage, and the control unit wherein the control signals are connected
to a variable optical attenuator VOA.

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3. (currently amended): [[An]] The optical amplifier according to claim 1, further comprising a variable attenuation slope compensator linked to the tilt controller, the second optically pumped signal light gain amplifying stage, and the control unit wherein the control signals are connected to a variable attenuation slope compensator VASC.

4. (currently amended): [[An]] The optical amplifier according to claim 1, wherein the first and the second gain stages [[are]] comprise doped fiber amplifiers.

5. (currently amended): [[An]] The optical amplifier according to claim 1, wherein the first gain stage is a Raman amplifying stage and the second gain stage amplifier is a doped fiber amplifier.

6. (currently amended): [[An]] The optical amplifier according to claim 1, wherein the an output signal of the amplifier is connected to a four-port tap coupler, where one port is linked to Bragg fiber gratings reflecting the extreme wavelengths of ASE amplified spontaneous emission noise and one port connected to a wavelength multiplexer separating the wavelengths for a measurement.

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7. (currently amended): ~~Communication~~ A fiber optic communication system with improved amplification and amplifying tilt control comprising at least one optical amplifier according claim 1 that amplifies signal light in a signal band, the optical amplifier comprising:

first and second optically pumped signal light gain amplifying stages,

a tilt controller linked to a control unit and linked between the first and second optically pumped signal light gain amplifying stages, and

an optical monitor analyzing signal powers, wherein the optical monitor measures an amplified spontaneous emission of the optical amplifier at two extreme wavelengths of the signal band, and

a control unit which controls at least the tilt controller and the first and second optically pumped signal light gain amplifying stages to adjust a spectrum of the optical amplifier, based on the measured amplified emission.

8. (currently amended): ~~Method~~ A method for controlling ~~controlling~~ tilt of a fiber optic communication system comprising an optical amplifier that amplifies signal light in a signal band, the method comprising the step:

[[•]] Measuring ~~measuring~~ at the ~~an~~ output signals of the amplifiers ~~amplifier~~ two wavelengths ~~wavelength~~ at the extremities of the signal band out of the ASE ~~an amplified spontaneous emission~~ noise signal,

[[•]] Analyzing ~~analyzing~~ the measured signals in an optical monitor ~~of the amplifier,~~ and

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[[•]] Feeding back the generating control signals via a control unit based on the measured signals and providing the control signals to at least to a tilt controller and first and second optically pumped signal light gain amplifying stages of the amplifier, and

[[•]] Adapting adapting the tilt according to the measured control signals to compensate tilt of amplifier and the line adjust a spectrum of the amplifier.